

second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, said means including a reflective layer structure positioned between the first indicia and the second indicia, said reflective layer preventing passage of said first fluorescing signal and said second fluorescing signal during said detection process."

Claims 6, 7, 8, 36 and 37 have been amended to delete the alternate language "or absorptive".

Claims 33, 35, 36 and 37 have been amended to recite that the detection process is for reading information from the first indicia or the second indicia.

Claims Rejections -35 USC § 112, 2nd ¶

Claim 1 stands rejected as being indefinite, on the grounds that it is unclear how the indicia is "defined" by a fluorescent material. The rejection is respectfully traversed on the ground that a prima facie case of indefiniteness has not been established, for reasons given in applicants' amendment filed April 22, 2002. The rejection should be withdrawn.

Claims Rejections - 35 USC § 102

Claims 1-6, 9, 11-13, 32 and 34-37 stand rejected as being anticipated by Chatwin et al. ("Chatwin"). This rejection is respectfully traversed in that a prima facie case of anticipation has not been established.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. The elements must be arranged as required by the claim. MPEP § 2131.

Here, Chatwin does not disclose each element as set forth in Claim 1. Particularly, Chatwin does not describe a machine-readable indicia-bearing substrate comprising:

- a first information bearing indicia defined by a fluorescent material positioned adjacent to the first surface;

- a second information bearing indicia defined by a fluorescent material positioned adjacent to the second surface;

- means for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted

by the second indicia during a detection process for reading information from said first indicia or said second indicia, said means including a reflective layer structure positioned between the first indicia and the second indicia, said reflective layer preventing passage of said first fluorescing signal and said second fluorescing signal during said detection process.

Insofar as Chatwin is understood, none of the examples describe first and second indicia defined by a fluorescent material as recited in the claim, nor a means for preventing interference as recited in Claim 1. Chatwin describes that a bank note thread can have miniature holographic areas subtly overprinted with indicia receptive coating presented with or containing as windows defining fine security indicia, and that "both sides of the thread may be embossed, metallised and printed. (12:61-67) There is no description that the security indicia of these threads is readable during a detection process, or of a means for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia.

Regarding the rejection of Claim 32, the Examiner has pointed out FIG. 1 as showing the invention of Claim 1. FIG. 1 of Chatwin is a different embodiment from that described at 13:61-67, and thus an anticipating disclosure is not made. Similar considerations apply to Claims 34-37.

The rejection under Section 102 should be withdrawn. A prima facie case of anticipation has not been established, and the reference does not describe each element of Claim 1.

Claims Rejections -35 USC § 103

Claims 1, 7-8 and 14 stand rejected as being unpatentable over Chatwin in view of Hiraishi et al. ("Hiraishi").

Claims 1 and 10 stand rejected as being unpatentable over Chatwin in view of Curatolo.

Claims 33 and 35-37 stand rejected as being unpatentable over Chatwin in view of Schneider et al. ("Schneider").

These rejections are respectfully traversed, on the ground that a prima facie case of obviousness has not been established, and the references do not teach or suggest the claimed invention.

With respect to the combination of Chatwin and Hiraishi, there is no suggestion to combine the references in such a way as to provide the claimed invention. Chatwin describes a decorative article, that contains a viewable optically variable effect such as a hologram. Hiraishi describes a color-image recording material, wherein microcapsules containing therein a photohardenable resin and a colorant are arranged in a striped or mosaic pattern in a layer on a substrate, exposing the color-image recording material with ultraviolet, visible or infrared rays, and then applying heat or pressure to rupture the capsules in unexposed areas, to release the liquid substances in the microcapsules. The released liquid substances migrate to a light proof white layer and make the layer selectively transparent, so that picture elements become visible through the transparent portions and are recognized as a color image. (2:64 to 3:24)

The Examiner alleges that Hiraishi shows that the support can be made of a composite sheet made from materials such as metal foil, paper, various nonwovens, plastic films, and synthetic paper. The Examiner holds that it would have been obvious (i) to make the substrate of applicants' invention which comprises metal foil because such a support is known in the art, (ii) to make a composite sheet of a combination of paper (first and second layers of substrate material) and an incorporation of metal foil (reflective layer), and (iii) to arrange the layers which are well known in the art in a manner that would result in an effective substrate. Applicants respectfully disagree.

Measuring a claimed invention against the standard established by 35 USC 103 requires the critical step of casting the mind back to the time of invention, to consider only the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the art. The case law of the Federal Circuit makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. Evidence of a suggestion, teaching or motivation may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or in some cases, from the nature of the

problem to be solved. The range of sources available, however, does not diminish the requirement for actual evidence. The showing of such actual evidence must be clear and particular. Broad conclusory statements regarding the teaching of multiple references, standing alone, are not evidence. The required showing of evidence should include particular factual findings. In re Dembiczak, 50 USPQ 2d 1614, 1617 (Fed.Cir. 1999).

Here, the rejection is the product of prohibited hindsight reconstruction, using applicants' specification as a blueprint to find an assortment of elements in different references. Chatwin and Hiraishi are unrelated, and there is no teaching or suggestion in either reference to modify one reference based on the other, no suggestion as to any advantage to be obtained by such modification, nor any recognition that the alleged modification would result in a workable structure. Moreover, the allegation that all claim elements are known in the art is insufficient to establish prima facie obviousness without some objective reason to combine the teachings of the references. MPEP § 2143.01

The rejection of Claims 1 and 10 as being unpatentable over Chatwin in view of is also the product of attempted hindsight reconstruction, and should be withdrawn. Because Chatwin does not disclose all elements of Claim 1, and Curatolo is relied upon only for a teaching of a particular fluorescent material, the combination fails to disclose or teach the invention of Claim 1, for reasons similar to those discussed above regarding the combination of Chatwin and Hiraishi.

Claims 33 and 35-37 are drawn to machine-readable indicia-bearing substrate structures. Claims 33 and 35-36 recite a planar substrate structure, and are allowable for reasons similar to those discussed above regarding Claims 1 and 32. Claim 37 recites a planar print medium, to which first and second information bearing indicia are positioned adjacent respective first and second surfaces of the print medium. Claim 37 is allowable for reasons similar to those discussed above regarding Claims 1 and 32.

CONCLUSION

The outstanding objections and rejections have been addressed, and the application is in condition for allowance. Such favorable reconsideration is solicited.

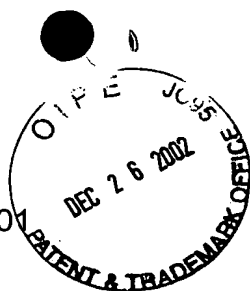
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Dated: 12/17/02

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

1. (Amended) A machine-readable indicia-bearing substrate structure, comprising:

a substrate having a first surface and a second surface;

a first information bearing indicia defined by a fluorescent material positioned adjacent to the first surface;

a second information bearing indicia defined by a fluorescent material positioned adjacent to the second surface; and

means for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, said means including a reflective layer structure positioned between the first indicia and the second indicia, said reflective layer preventing passage of said first fluorescing signal and said second fluorescing signal during said detection process.

2. (Amended) The substrate structure of Claim 1 wherein the [interference preventing means] reflective layer structure includes a thin metal foil layer positioned between the first indicia and the second indicia.

4. (Amended) The substrate structure of Claim [3] 1 wherein the reflective or absorptive layer comprises one or more of the following materials:

Titanium (IV) Oxide (TiO₂), Zinc Oxide (ZnO), Zirconium (IV) Oxide (ZrO₂), aluminum oxide (AlO₃), aluminum oxide hydroxide (AlO(OH)), aluminum trihydroxide (Al(OH)₃).

6. (Amended) The substrate structure of Claim 1 wherein the [interference preventing means] reflective layer structure includes:

a first layer of a reflective [or an absorptive] material disposed on the first surface of the substrate, the first indicia disposed on an outer surface of the first layer; and

a second layer of a reflective [or an absorptive] material disposed on the second surface of the substrate, the second indicia disposed on an outer surface of the second layer.

7. (Amended) The substrate structure of Claim 1 wherein the [interference preventing means] reflective layer structure includes reflective [or absorptive] radiation blocking materials dispersed within said substrate.

8. (Amended) The substrate structure of Claim 1 wherein the substrate comprises first and second thin layers of a substrate material, and [the interference preventing means] reflective layer structure includes a reflective [or absorptive layer] sandwiched between the first thin layer and the second thin layer.

33. (Amended) A machine-readable indicia-bearing substrate structure, comprising:

- a planar substrate having a first surface and a second surface which are disposed in an essentially parallel relationship;

- a first information bearing indicia formed by a fluorescent material positioned adjacent to the first surface;

- a second information bearing indicia formed by a fluorescent material positioned adjacent to the second surface; and

- a thin metal layer positioned between the first indicia and the second indicia for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia.

35. (Amended) A machine-readable indicia-bearing substrate structure, comprising:

- a planar sheet of a print medium;

- a planar substrate structure having a first surface and a second surface which are disposed in an essentially parallel relationship said substrate structure adhered to a surface of said planar sheet;

a first information bearing indicia formed by a fluorescent material positioned adjacent to the first surface;

a second information bearing indicia formed by a fluorescent material positioned adjacent to the second surface; and

a thin metal layer positioned between the first indicia and the second indicia for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia.

36. (Amended) A machine-readable indicia-bearing substrate structure, comprising:

a planar sheet of a print medium;

a planar substrate structure having a first surface and a second surface which are disposed in an essentially parallel relationship, said substrate structure adhered to a surface of said planar sheet;

a first information bearing indicia formed by a fluorescent material positioned adjacent to the first surface;

a second information bearing indicia formed by a fluorescent material positioned adjacent to the second surface; and

a reflective [or absorptive] layer positioned between the first indicia and the second indicia for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia.

37. (Amended) A machine-readable indicia-bearing substrate structure, comprising:

a planar print medium having a first surface and a second surface which are disposed in an essentially parallel relationship;

a first information bearing indicia formed by a fluorescent material positioned adjacent to the first surface at a first portion of the print medium which does not receive printed components of an image during a printing process;

a second information bearing indicia formed by a fluorescent material positioned adjacent to the second surface at a second portion of the print

medium which does not receive printed components of an image during a printing process; and

a reflective [or absorptive] layer positioned between the first indicia and the second indicia for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia.